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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/702,218	10/30/2000	Arthur W. Wang	PD-990302	9458

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THE DIRECTV GROUP INC  
PATENT DOCKET ADMINISTRATION RE/R11/A109  
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EXAMINER

LEE, JOHN J

ART UNIT	PAPER NUMBER
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2684

DATE MAILED: 01/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 09/702,218	Applicant(s) WANG, ARTHUR W.	
	Examiner JOHN J. LEE	Art Unit 2684	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 05 October 2005.
- 2a) ☒ This action is FINAL.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-32 and 45-52 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 12-14 is/are allowed.
- 6) ☒ Claim(s) 1-7, 9-11, 15-22, 24-31 and 45-52 is/are rejected.
- 7) ☒ Claim(s) 8, 23, and 32 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |                                                                                                                        |                                                                                         |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                                                       | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____                                                |

## DETAILED ACTION

### *Response to Arguments/Amendment*

1. Applicant's arguments/amendments received on October 05, 2005 have been carefully considered but they are not persuasive because the teaching of all the cited reference reads on all the rejected claims as set forth in the pervious rejection. Therefore, the finality of this Office Action is deemed proper.

Contrary to the assertions at pages 10 - 19 of the Arguments, claims 1, 7, 9, 16, 22, 24, 31, 45, and 50 are not patentable.

During examination, the USPTO must give claims their broadest reasonable interpretation.

Re claims 1, 16, and 24: Applicant argues that the teaching of Torkington (US 6,198,907) does not teach the claimed invention "a geosynchronous orbit". However, The Examiner respectfully disagrees with Applicant's assertion that the teaching of Torkington does not teach the claimed invention. Contrary to Applicant's assertion, the Examiner is of the opinion that Torkington teaches a constellation is defined herein to main an ensemble of satellites arranged in orbits for providing specified coverage of a portion or of all portions of the earth, and a constellation typically includes multiple ring (or planes) of satellites, and it can have equal numbers of satellite in each plane, although this is not essential, a constellation could include geostationary or non-geostationary, or a combination of both, and providing satellites with synchronized orbit (Fig. 2, 5, column 2, lines 29 – column 3, lines 22, and column 1, lines 13 - 23), regarding the claimed limitation.

Re claim 9: Applicant argues that the Torkington does not teach the claimed invention “an antenna having a sensitivity characteristic”. However, The Examiner respectfully disagrees with Applicant’s assertion that the Torkington does not teach the claimed invention. Contrary to Applicant’s assertion, the Examiner is of the opinion that Torkington teaches a receiver has a controllable antenna (steering antenna) to track point in correct direction and from at least one antenna beam with the desired characteristics (see column 6, lines 11 – column 7, lines 30 and Fig. 6), regarding the claimed limitation. More specifically, the claimed limitation “a sensitivity characteristic” can interpret tracking point in correct direction and from at least one antenna beam with the desired characteristics since the limitation is not limit/require for any special function or description in the claim.

Re claim 45: The Examiner respectfully disagrees with Applicant’s assertion that the Torkington does not teach the claimed invention “a receiver antenna can communicate with one satellite during an active period without tracking”. Contrary to Applicant’s assertion, the Examiner is of the opinion that Torkington teaches a receiver antenna communicates with at least one satellite during a moving period without tracking because receiver’s controllable antenna tracking is only required to have one degree of freedom as the link can be handed off at the appropriate times (see column 6, lines 66 – column 7, lines 59 and Fig. 1, 6), regarding the claimed limitation.

Re claims 7, 22, and 31: The Examiner respectfully disagrees with Applicant’s assertion that the combination of Torkington and Briskman (US 6,564,053) do not teach the claimed invention “an orbital inclination approximately equal to 50 degrees and

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eccentricity approximately equal to 0.13". Contrary to Applicant's assertion, the Examiner is of the opinion that Briskman teaches the eccentricity range in preferred embodiments is from about 0.15 and about 0.30, and Eccentricities between about 0.15 and about 0.28, and inclination of the satellites is generally chosen between about 40 degree and about 80 degree so they cover the desired high latitude service areas during their transit overhead (column 2, lines 5 - 20 and Fig. 1), regarding the claimed limitation. More specifically, the limitation "approximately equal to 50 degrees" is not equal to 59 degree, could be 60 degree or 70 degree.

Re claim 50: the applicant is required to submit for the affidavit to overcome the previous rejection.

Applicant's attention is directed to the rejection below for the reasons as to why this limitation is not patentable.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. **Claims 1-6, 9, 15-21, 24-30, and 45-49** are rejected under 35 U.S.C. 102(e) as being anticipated by Torkington et al.(US Patent number 6,198,907).

Regarding **claims 1, 16, and 24**, Torkington discloses that a system for providing at least near continuous broadcast service to a terrestrial receiver (Fig. 3, column 2, lines 29 – 50, and abstract). Torkington teaches that a plurality of satellites (Fig. 1, 2), each satellite in an inclined, elliptical, geosynchronous orbit, each satellite providing a portion of time of the at least near continuous broadcast service to the terrestrial receiver (Fig. 1, 3, column 2, lines 40 – column 3, lines 40, and column 7, lines 31 – 59, where teaches satellite communication system has a plurality of satellites in an inclination, elliptical, geosynchronous orbit, for providing a particular portion of time of the continuous broadcasting service to the terrestrial receiver by field of view handoff). Torkington teaches that the plurality of satellites augments at least one legacy satellite (old or used satellite) in a geostationary orbit (column 9, lines 37 – column 10, lines 21 and Fig. 5, 9, where teaches each satellite, multiple satellites are lunched into a single holding orbit, backbone satellite in geostationary orbit).

Regarding **claims 2, 15, and 17**, Torkington discloses that a first satellite (Fig. 5) actively servicing the terrestrial receiver, and a second satellite (100 in Fig. 1), wherein an apparent position of the second satellite relative to the terrestrial receiver is substantially proximate the apparent position of the first satellite relative to the terrestrial receiver (column 6, lines 11 – 65 and Fig. 5) when the first satellite completes providing its portion of the broadcast service (column 5, lines 36 – column 6, lines 65 and Fig. 3, 5, where teaches a satellite services to the terrestrial receiver, and second satellite is located apparent position to the terrestrial receiver, and first satellite handoffs to second satellite as completes providing its portion of the broadcast service).

Regarding **claims 3, 18, and 27**, Torkington discloses that a track of the apparent position of each of the satellites relative to the terrestrial receivers when the satellite is providing its portion of the at least near continuous broadcast service is substantially closed loop (column 5, lines 36 – column 6, lines 65 and Fig. 1, 3, where teaches tracing of the apparent position of each of the satellite to the terrestrial receiver as the satellite is providing continuous broadcast service is closed loop).

Regarding **claims 4, 19, and 28**, Torkington discloses that the terrestrial receiver comprises an antenna having a sensitivity characteristic substantially corresponding to the track of the apparent position of each of the satellites (column 5, lines 36 – column 6, lines 65 and Fig. 1, 3, where teaches the receiver's antenna to track of the apparent position of each of the satellites).

Regarding **claims 5, 20, and 29**, Torkington discloses that the track of the apparent position of each of the satellites substantially corresponds to a sensitivity pattern of an antenna at the terrestrial receiver (column 5, lines 36 – column 6, lines 65 and Fig. 1, 3, where teaches the receiver's antenna to track a sensitivity pattern for the apparent position of each of the satellites).

Regarding **claims 6, 21, and 30**, Torkington discloses that a track of the apparent position of each of the satellites relative to the terrestrial receivers when the satellite is providing its portion of the at least near continuous broadcast service is substantially teardrop-shaped (column 5, lines 36 – column 6, lines 65, Fig. 1, 3, and column 2, lines 29 - 50, where teaches providing its portion of the continuous broadcast service is substantially rings-shaped).

Regarding **claim 9**, Torkington discloses all the limitation, as discussed in claims 1 and 4. However, Torkington further discloses that an antenna having a sensitivity characteristic substantially corresponding to the track of the apparent position of each of the satellite (column 5, lines 36 – column 6, lines 65 and Fig. 1, 3, where teaches the receiver's antenna to track a sensitivity pattern for the apparent position of each of the satellites).

Regarding **claim 25**, Torkington discloses all the limitation, as discussed in claims 1 and 2.

Regarding **claim 26**, Torkington discloses all the limitation, as discussed in claims 1 and 2.

Regarding **claim 45**, Torkington discloses all the limitation, as discussed in claim 1. Furthermore, Torkington further discloses that a receiver station antenna (Fig. 6) that can communicate with said at least one satellite and at least one of said plurality of satellites during an active period without tracking (column 5, lines 36 – column 6, lines 65 and Fig. 1, 6, where teaches remote user terminal has a antenna which communicates a satellite and a second satellite during an active period without tracking, more specifically, a satellite's ground tracking antenna transmits broadcast signal to remote terminal and also communicates with second antenna that is pointed communicating to the satellites without tracking). Torkington teaches that a gateway (Fig. 8) having a tracking antenna to track said plurality of satellites (Fig. 1, 8, and column 8, lines 58 – column 9, lines 36, where teaches a switching gateway has tracking antennas to continually tracking to the satellite).



Regarding **claim 46**, Torkington discloses all the limitation, as discussed in claims 3 and 45. Furthermore, Torkington further discloses that the apparent position of the active satellite substantially overlaps another one of the plurality of satellites that is beginning the active period (Fig. 3 and column 5, lines 27 – 55).

Regarding **claim 47**, Torkington discloses that a beamwidth of said tracking antenna of said gateway is sufficient to encompass both said active one and said another one of said plurality of satellites (Fig. 1, 8, and column 8, lines 58 – column 9, lines 36, where teaches a switching gateway has tracking antennas to continually tracking to the satellite).

Regarding **claim 48**, Torkington discloses that apparent positions of the plurality of satellites are spatially separated from the apparent position of the at least one satellite in geostationary orbit to avoid interference (Fig. 1, 5, and column 1, lines 13 – 23).

Regarding **claim 49**, Torkington discloses all the limitation, as discussed in claims 4 and 45. Furthermore, Torkington further discloses that at least one satellite in geostationary orbit is at least thirty degrees (column 4, lines 29 – column 5, lines 62 and Fig. 2, 4).

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. **Claims 7, 22, and 31** are rejected under 35 U.S.C. 103(a) as being unpatentable over Torkington in view of Briskman et al. (US Patent number 6,564,053).

Regarding **claims 7, 22, and 31**, Torkington discloses all the limitation, as discussed in claim 1. However, Torkington does not specifically disclose the limitation “an orbit inclination **approximately** equal to 50 degrees and eccentricity **approximately** equal to 0.13”. However, Briskman teaches the limitation “an orbit inclination approximately equal to 50 degrees and eccentricity approximately equal to 0.13” (column 2, lines 5 – 19, where teaches the inclination of the satellites is generally chosen between about 40 degrees and about 80 degrees and eccentricity range is about 0.15 to about 0.30). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the Torkington system as taught by Briskman. The motivation does so would be to improve the satellite pattern for continuous broadcasting service and optimizing coverage of particular service area in direct broadcast satellite system.

6. **Claims 10, 11, and 50- 52** are rejected under 35 U.S.C. 103(a) as being unpatentable over Torkington in view of Anderson (US Patent number 6,778,810).

Regarding **claims 10 and 11**, Torkington does not specifically disclose the limitation “the receiver antenna comprises a reflector having a focal line and a focal point on the focal line and a head, wherein the head is disposed offset from the focal point”. However, Anderson discloses the limitation “the receiver antenna comprises a reflector

having a focal line and a focal point on the focal line and a head, wherein the head is disposed offset from the focal point” (Fig. 2, 4 and column 4, lines 61 – column 5, lines 30, where teaches focus of the parabolic reflector, which shapes for avoid to account for the offset, having reflects and focuses the energy from the transmitter and the angle positions the low noise block out of the way to minimize attenuation of the incoming signal along the antenna centerline). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the Torkington system as taught by Anderson. Doing so would enhance the broadcast signal adaptability in satellite communication system.

Regarding **claim 50**, Torkington disclose all the limitation, as discussed in claims 1, 3, and 4. However, Torkington does not specifically disclose the limitation “a receiver station having relatively high gain, fixed antenna capable of communication with said at least one satellite in a geostationary orbit and an active one of said augmenting constellation of satellites”. However, Anderson discloses the limitation “a receiver station having relatively high gain, fixed antenna capable of communication with said at least one satellite in a geostationary orbit and an active one of said augmenting constellation of satellites” (column 4, lines 40 – 60, Fig. 1, 3, 5, and column 6, lines 13 – 60, where teaches the receiver station having a highly gain and fixed antenna communicating with a geostationary satellite and other satellites). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the Torkington system as taught by Anderson. The motivation does so would be to achieve optimum broadcast signal adaptability in satellite communication system.

Regarding **claim 51**, Torkington and Anderson disclose all the limitation, as discussed in claims 48 and 50.

Regarding **claim 52**, Torkington and Anderson disclose all the limitation, as discussed in claims 6 and 50.

***Allowable Subject Matter***

7. Claims 12 – 14 are allowed.

Claims 12 – 14 are allowable over the prior art of record because a search does not detect the combined claimed elements as set forth in the claims 12 – 14.

As recited in independent claim 12, none of the prior art of record teaches or fairly suggests that the receiver antenna comprises a reflector having a focal line and a focal point on the focal line and a head, wherein the head is disposed offset from the focal point, and wherein the head is disposed offset from the focal line and the reflector is approximately 18 centimeters in diameter, and the head is disposed approximately 7 inches offset from the focal point and approximately 4 inches offset from the focal line, and together with combination of other element as set forth in the claims 12 – 14. Therefore, claims 12 – 14 are allowable over the prior art of records.

8. Claims 8, 23, and 32 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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The prior art of record fails to show “the satellite orbits are a period approximately equal to 86164 seconds, an altitude at perigee approximately equal to 30305 kilometers, and an altitude at apogee approximately equal to 41268 kilometers” as specified in the claims 8, 23, and 32.

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

***Conclusion***

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks  
Washington, D.C. 20231  
Or P.O. Box 1450  
Alexandria VA 22313

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or faxed (571) 273-8300, (for formal communications intended for entry)

Or: (703) 308-6606 (for informal or draft communications, please label "PROPOSED" or "DRAFT").

Hand-delivered responses should be brought to USPTO Headquarters, Alexandria, VA.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **John J. Lee** whose telephone number is **(571) 272-7880**. He can normally be reached Monday-Thursday and alternate Fridays from 8:30am-5:00 pm. If attempts to reach the examiner are unsuccessful, the examiner's supervisor, **Nay Aung Maung**, can be reached on **(571) 272-7882**. Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-4700.

J.L  
December 23, 2005

John J Lee

12/27/05  
*Tilahun Geesse*  
**TILAHUN GESESSE**  
**PRIMARY EXAMINER**